

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

Ex parte MELISA BUIE, BRIGITTE STOEHR and GUENTHER RUHL

Appeal No. 2006-1320  
Application No. 10/024,958

ON BRIEF

MAILED

MAY 12 2006

U.S. PATENT AND TRADEMARK OFFICE  
BOARD OF PATENT APPEALS  
AND INTERFERENCES

Before KIMLIN, WALTZ and FRANKLIN, Administrative Patent Judges.

KIMLIN, Administrative Patent Judge.

DECISION ON APPEAL

This is an appeal from the final rejection of claims 1-24.

Claim 1 is illustrative:

1. A method for processing a photolithographic reticle, comprising:

positioning the reticle on a support member in a processing chamber, wherein the reticle comprises a metal photomask layer formed on a silicon based substrate and a patterned resist material deposited on the metal photomask layer;

Appeal No. 2006-1320  
Application No. 10/024,958

introducing a processing gas comprising carbon monoxide and chlorine gas into the processing chamber, wherein the carbon monoxide and chlorine gas have a molar ratio between about 1:9 and about 9:1; and

delivering power to the processing chamber to generate a plasma and remove exposed portions of the metal photomask layer.

The examiner relies upon the following references as evidence of obviousness:

Meyer et al. (Meyer)	4,600,686	Jul. 15, 1986
Yasuzato et al. (Yasuzato)	5,750,290	May 12, 1998
Kornblit et al. (Kornblit)	5,948,570	Sep. 7, 1999
Demmin et al. (Demmin)	6,635,185	Oct. 21, 2003

(filed: Dec. 31, 1997)

Appellants' claimed invention is directed to a method for processing photolithographic reticles. The method entails plasma etching exposed portions of a metal photomask layer, such as chromium, with a processing gas comprising carbon monoxide and chlorine gas.

Appealed claims 1-24 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Kornblit in view of Meyer, Yasuzato and Demmin.

Appellants have not presented separate substantive arguments for the dependent claims on appeal. Accordingly, the dependent claims stand or fall together with the independent claims upon which they depend, namely, claims 1, 13 and 20.

Appeal No. 2006-1320  
Application No. 10/024,958

We have thoroughly reviewed each of appellants' arguments for patentability. However, we are in complete agreement with the examiner that the claimed subject matter would have been obvious to one of ordinary skill in the art within the meaning of Section 103 in view of the applied prior art. Accordingly, we will sustain the examiner's rejection for essentially those reasons expressed in the answer.

There is no dispute that Kornblit, like appellants, discloses a method of plasma etching a chromium layer that can be used for reticles by utilizing a gaseous mixture of oxygen, chlorine and nitrogen. As appreciated by the examiner, Kornblit does not teach the use of the presently claimed carbon monoxide in the gaseous etching mixture. However, Kornblit expressly teaches that other gases may be added to the etchant gas mixture (column 4, lines 38 et seq.). Meyer, on the other hand, discloses the plasma etching of a chromium photomask by using a gaseous mixture of carbon monoxide and chlorine-containing gas, with the carbon monoxide being a carrier gas. Accordingly, we find that it would have been obvious for one of ordinary skill in the art to select carbon monoxide as one of the "other gases" of Kornblit to serve as a carrier gas. We note that Kornblit

teaches noble gases as examples of the "other gases," and Meyer teaches carbon monoxide as an equivalent of noble gas argon as a carrier gas. While appellants stress that Meyer teaches the use of carbon monoxide in combination with carbon tetrachloride, we agree with the examiner that Yasuzato clearly teaches the equivalence of chlorine gas and carbon tetrachloride as an etchant for chromium (column 2, lines 12-14).<sup>1</sup>

Appellants contend that "the critical use of nitrogen specifically in combination with chlorine and oxygen in Kornblit teaches away from the use [sic, of] other compounds, such as carbon monoxide recited in claims 1-24" (page 11 of principal brief, penultimate paragraph). However, as explained above, Kornblit expressly teaches the use of other gases in the etchant mixture. Appellants have not explained why it would have been nonobvious for one of ordinary skill in the art to use carbon monoxide as a carrier gas in the etchant mixture of Kornblit. Manifestly, the examiner's finding of obviousness does not require the elimination of nitrogen from the etchant mixture of

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<sup>1</sup>We note that the Demmin reference is not necessary for our conclusion of obviousness of the claimed subject matter.

Appeal No. 2006-1320  
Application No. 10/024,958

Kornblit, and the "comprising" language of the appealed claims does not preclude the use of nitrogen in the etchant mixture.

Regarding the operating parameters recited in the independent claims, such as molar ratio between carbon monoxide and chlorine gas and chamber pressure, appellants have not demonstrated, let alone asserted, any criticality with respect to these parameters. It is well settled that where patentability is predicated upon a change in a condition of a prior art composition or process, such as a change in concentration, temperature, pressure or the like, the burden is on the applicant to establish with objective evidence that the change is critical, i.e., it leads to a new, unexcepted result. In re Woodruff, 919 F.2d 1575, 1578, 16 USPQ2d 1934, 1936 (Fed. Cir. 1990); In re Aller, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955).

As a final point, we note that appellants base no argument upon objective evidence of nonobviousness, such as unexpected results, which would serve to rebut the inference of obviousness established by the examiner.

Appeal No. 2006-1320  
Application No. 10/024,958

In conclusion, based on the foregoing, the examiner's decision rejecting the appealed claims is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a).

AFFIRMED

*Edward C. Kimlin*

EDWARD C. KIMLIN )  
Administrative Patent Judge )  
)

*Thomas A. Waltz* )  
THOMAS A. WALTZ ) BOARD OF PATENT  
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Appeal No. 2006-1330  
Application No. 10/024,958

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